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ARCHÆOLOGY AND ETHNOLOGY.

Mound Explorations by W. K. Moorehead.¹—MOUND NO. 36.—This mound is situated on high ground, overlooking the Scioto River, in Ross County, Ohio. We commenced work upon it March 21, 1889, by making a trench twenty-two feet wide on the smooth side, cutting entirely off that side. At a point about ten feet distant from the south edge we came upon a group of fifteen skeletons deposited in black earth on the original surface of the ground. They were not buried with any regularity. The mound above the skeletons was composed of yellow clay. It was with the greatest difficulty that we preserved two of the skulls entire. Near the south side of these bones, or where they commenced, was found a deposit of two hundred pottery fragments. When buried, the vessels which these fragments represent were evidently whole, but the pressure of the earth above had broken them into small pieces. To the west was found the skeleton of a child, tolerably well preserved. Above this was a layer of charcoal nearly a foot thick which extended northeast through the mound. All the other skeletons were placed about a foot below this. The charcoal was in pieces about as large as one's fist, and laid regularly, as if short logs had been thrown in and covered while burning.

There were no objects placed with these skeletons save in two instances. One skeleton situated in the centre of the mound had, between the thigh bones (femur), a number of objects; a stone tube in an unfinished condition, a slate ornament with two perforations, a banded slate ornament with one perforation, and a stone celt. Just above these, and laid in two rows, parallel with the bones, were ten flint arrowheads made of the black chalcedony found at Flint Ridge. These arrows were placed in two rows lying against the bones on each side. With another skeleton was found another deposit of the following objects, in the order in which they were found:

A large hematite celt, about four inches long, three inches wide, and weighing half a pound; a stone tube of steatite, five inches in length, with large perforation lengthwise drawn to a small aperture at one end (this is similar to those figured by Squier and Davis, who opened mounds in this neighborhood forty years ago); two beautiful leaf-shaped chalcedony spear-heads; above them was a celt and chisel of

¹This department is edited by Thomas Wilson, Esq., Smithsonian Institution, Washington, D. C.

greenstone. We continued down nearly ten feet further and were then at the centre of the mound. We found no more large deposits of objects. On the east side we found, on the base line, the skeleton of a child with three shell beads and two copper rings on the left hand. On the north side of the mound was found a layer of fine white ashes under the charcoal, then a small patch of burnt clay, but it was not regular enough to be called an altar. The wood of this charcoal was sufficiently well preserved to be recognized as white oak, hickory, poplar and chestnut.

There were no distinct layers in this mound, and no evidence of cremation. The charcoal had been placed there in a cold state, as the earth around it was not burned. Five men were employed two days in opening this mound.

MOUND No. 37.—This mound is on the farm of Jesse James, three miles east of Chillicothe, Ohio, and situated on the third river terrace. Its dimensions are 50 x 76 x 13 feet. We began operations by starting a 22-foot trench on the east side, following the longest diameter of the mound. This was continued for fifty-nine feet, or until we were ten feet beyond the centre. Finding nothing of importance we stopped work. After we worked about twenty feet from the outer edge we came upon a bed of burnt bones and ashes three inches thick and extending eighteen feet toward the centre of the mound. We found by digging under the walls, on each side of our trench, that this layer ran further than the width of our trench. At about fifteen feet from the centre and on the base line of the mound was a skeleton, and 159 shell beads made from ocean shells. One hundred and two of these beads lay near the head, the rest near the lumbar vertebræ. The bones were too fragile to be preserved. Six feet from the base line and seven and a half feet from the summit, was a second skeleton in a better state of preservation. It lay above and to the west of the other skeleton.

The right femur lay with the lower articulate end far to the left. The tibia of the right leg lay in natural position, but the fibula lay far over to the left. The fibula of the left leg lay under the tibia of the left leg in an unnatural position, and both too much to the left.

ANATOMICAL PECULIARITIES.

1. Shoulder to shoulder measurement, 19 inches.
2. Head slightly crushed.
3. Lumbar vertebræ gone (in part).
4. Pelvis overlaps the hands.

6. Sacrum gone.
6. End of ulna nearly under the vertebræ (right ulna).
7. Right femur out of position.
8. Tibia and fibula of right and left legs out of position.
9. Not all the feet bones present.

Near the second skeleton was the skull of a panther, and at the west end of the trench, near the surface, we found the skull of a wolf. There were no relics whatever in this mound save the beads.

We had five men working six days.

MOUND No. 38.—This mound is on the farm of Mr. Till Porter, one quarter of a mile west of Frankfort, Ohio, and is nine feet high, and seventy by seventy-five feet in extent. Its greatest diameter is N. E. and S. W. We began work by opening a trench twenty-three feet in width on the south side; but Mr. Porter wishing the entire mound taken out, we engaged three teams and widened our trench so as to include all the mound except the northern part. The sides of this trench were irregular because we followed the "leads" of charcoal and ashes. It is in deposits of this nature that we find the skeletons. All our finds were on the east and south sides of the mound; nothing on the west side.

The ground on which this mound is built was cleared and leveled, and then burned. By keeping on this floor, shoveling was easy and the objects found without difficulty. At the base, and twelve feet from the outer edge, we came upon a mass of charcoal and animal bones. The latter were found at frequent intervals throughout the mound. For the next thirty feet the finds were unusually rich, and yielded us more skeletons and relics than any heretofore opened.

Two feet beyond the animal bones to the north, lay a skeleton with head to the south. It lay on the bottom of the mound, and was taken out in good condition. The shell and jaw found were intended to accompany this skeleton. On the same level lay another skeleton, much decayed, but which had, near its right hand, three copper buttons, a copper celt, and, above the head, a copper plate. The latter had an imprint of cloth upon it, and is similar to that figured by Foster in his work on Pre-historic Races of the United States. The metal coming in contact with the bones of the skull had colored them green. The bones and teeth indicated a person less than twenty-five years of age.

The next skeleton found lay on the base line, with its head toward the west. We took out all of its bones entire. No relics were found near it. Nearly all of these bodies were buried with the flesh on,

about seven feet from the centre, and at a point where the stratification showed to good advantage. The following enumeration of layers shows how the mound was put up :

IRREGULAR LAYERS.

A. Clay,	1 ft.	
B. Dark clay,		6 in.
C. Gravel,		6 in.
D. Clay,	1 ft.	
E. Coarse gravel,		4 in.
F. Clay,		8 in.
G. Patch of gravel, followed by a thin streak of clay, very irregular,		4 in.
H. Gravel,		6 in.
I. Coarse clay,	1 ft.	8 in.
K. Soft dark spots, of very irregular shapes, which held the skeletons and extended upwards one and one- half feet,	1 ft.	6 in.
Total,		8 ft.

L. The altars found on each side, shown in the vertical section, and which extended upwards about one foot.

M. The burnt floor of the mound.

Near the centre of the mound was found a large skeleton, better preserved than most of the others, and which seemed to be the most important individual buried there. It lay on the base line, with head to the north. The head was about six inches higher than the feet, which were much decayed. About six inches from the extremities of the left foot we found a large copper plate, with a print of wood on one side, and coarse cloth on the other. This plate was thirteen by seven inches, and its weight over a pound, and was probably the largest ever taken from a mound in this country. Near the right femur were found twenty-two pearl beads, and at the shoulder eight large bear teeth. Three copper buttons lay against one of these bear teeth and had colored it green. At the neck of this individual we took out five hundred and eighty-four pearl beads, large and small. These were well preserved, and, but that each one had been perforated, their commercial value would be several thousand dollars.

Eight feet west of this last body, and in a little hollow, supported by burnt stones, was an altar of large size and regular outline. This altar is identical with those figured by Squier and Davis, in Vol. I. of

"Smithsonian Contributions to Knowledge." Altars have been occasionally found in the mounds, but there has never been but one taken out entire. This altar has a broad rim extending around it eight inches wide. The central depression is four inches deep, twenty inches long, twelve inches wide ; making the total length thirty-six inches.

On the east side of the mound, in the gravel layer, five feet from the summit and three feet from the base line, were found three copper celts and seven copper ear-rings. With these were three human ribs. The copper was in three rows ; the celts in the lowest row, four of the brooches in the second row, and three in the third row. Three more skeletons were found on the base line just north of this copper, but they had nothing with them.

Northeast of this last deposit is a spot of dark earth, which contained the ashes and calcined bones of six cremated individuals. With five of these copper had been buried, but the heat of the fire had melted it. Though damaged by heat, I obtained one celt, two large plates, eleven copper beads, and a cracked clay pipe. The burned bodies occupied spaces ranging from sixteen to twenty-four inches. A pipe, cracked by the heat, was found with the copper celt.

With the next skeleton found was a small copper celt, unhurt by the fire, which showed traces of both cloth and wood. The skeleton lay with head to the north on the base line, and was not very well preserved. Two more decayed skeletons were found which had copper buttons placed with them. They were placed with heads to the south and on the base line of the mound.

In the centre of this mound nothing whatever was found. Twelve feet from the centre, to the west, were two cremated bodies which had broken flint arrow-heads buried with them. To the north of these was a small, irregular altar. In this altar was a small black thornpipe, said by Squier and Davis to be the true mound pipe. Ten feet eastward was a small pit, with nicely squared edges, eight inches deep, twelve inches long, and ten inches wide, containing the skeleton of a child. The bones were well preserved, and with them were two perforated panther teeth. We found the bones of three more individuals in this mound. They were a little northeast of the small pit last mentioned, but nothing whatever was found with them. One of the skulls was saved whole. It is a very good representative of one of four types taken from this mound. One of these three skeletons was placed in a shallow pit, and near the group was an irregular mass of hard-burned clay beveled and without depression. It could not therefore have been an altar.

This mound was seven days in being excavated, and six men were employed. It was hauled out by three teams and dumped in a gravel pit at the owner's request, so that it is now only three feet high, whereas it used to be over nine.

MICROSCOPY.

On a method of preparing blastoderms of the Fowl.—Hasnell (*Proc. Linn. Socy. New South Wales, 1889*) has found the following method of great value in expediting the process of removing and preparing the blastoderms of early stages (up to the third day), and also in diminishing the risk of injury. The fixing fluid used is ten per cent. nitric acid, as employed by Whitman and others. The novel point in the method is the mode of getting rid of the entire white without any trouble, and without risk of damaging the blastoderm.

An ordinary *conical* measuring glass of a capacity of 100 c.c., with the edge turned out with a large "lip," is placed in a flat dish, and is filled to the very brim with nitric acid. The egg shell is then broken, and the entire contents poured into the glass in exactly the method adopted in the kitchen, except that the egg is held when being opened close over the glass so that there may be as little disturbance as possible. The glass being brim full, when the contents of the egg are added to it a quantity of the fluid runs over the sides; with this there begins to run some of the external, more fluid, part of the white; as this runs over, it by its weight gently draws the firmer part of the white with it, and finally the firm layer which immediately invests the yolk is peeled off as one might peel off the outermost coat of an onion, leaving the yolk and blastoderm with the investing vitelline membrane quite entire and perfectly clean in the glass—the entire white having in this way spontaneously thrown itself off.* The whole process takes only two or three seconds. If, as occasionally happens, owing to some of the fluid having been splashed out of the glass in pouring in the egg, the white does not begin to run over the edge, a little of it should be pushed over the lip, and left to draw the rest after it in the manner described.